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ABSTRACT

This study compared critical thinking skills of 98 college freshmen as measured by the Watson-Glaser Critical Thinking Appraisal instrument during their first week in the course with their final grades in a freshman course. Results indicated that there were significant differences among the three groups on the three subtests of Inference, Recognition of Assumptions, and Evaluation of Arguments. On Inference and Evaluation of Arguments, A students had significantly higher scores that C students; on Recognition of Assumptions, A and B students scored significantly higher than C students. On the total critical thinking score, A students' scores were significantly higher than B and C students, and B students' scores were significantly higher than C students. Findings support the importance of teaching critical thinking skills at the middle and high school levels, in preparation for college work. (Author/NAV)

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DIFFERENCES AMONG COURSE GRADE GROUPS ON CRITICAL THINKING

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DIFFERENCES AMONG COURSE GRADE GROUPS ON CRITICAL THINKING

The current emphasis placed on the importance of critical thinking and the teaching of such skills has been indicated in numerous reports (College Board, 1983; Rockefeller Commission on Humanities, 1980; Boyer's Carnegie Foundation, 1983; Ennis, 1987). This emphasis in developing effective critical thinking skills is partly due to the increasing complexity of our society and the world and the need to adjust and make effective, rapid changes for survival (Halpern, 1984). Chaffee (1988) defined critical thinking as an active, purposeful and organized effort of our thinking, and that of others, in order to clarify and improve our understanding of the world. Dressel and Mayhew (1954) defined critical thinking as linked with abilities needed to solve problems, select pertinent information in solving problems, recognize stated and unstated assumptions, formulate and select promising hypotheses, and draw valid conclusions and judgments of the validity of inferences. The purpose of this study was to determine if there were significant differences on critical thinking skills among college students who earned grades of A, B, and C in freshman level courses.

Methods and Procedures

The subjects were 98 students enrolled in three college freshman level courses with one instructor. They responded to the Watson-Glaser Critical Thinking Appraisal, CTA.

(Watson & Glaser, 1980a) during the first week of the semester. Their course grades were determined at the end of the semester. In this group, there were 22 students who earned A grades, 49 students who earned B grades, and 27 students who earned C grades. In this group, there were 26 men and 72 women and their ages ranged from 17 to 60 years.

The CTA consists of five subtests (Inference, Recognition of Assumptions, Deductions, Interpretations, and Evaluation of Arguments) which assess Watson-Glaser's definition of critical thinking. These subtests include problems, statements, arguments, and interpretations of data similar to those encountered at work and in classrooms. (Watson & Glaser, 1980b). The five subtests of the Critical Thinking Appraisal are defined as follows:

Inference. The ability to discriminate among degrees of truth or falsity of inferences drawn from given data.

Recognition of Assumptions. The ability to recognize unstated assumptions or presuppositions in given statements or assertions.

Deductions. The ability to determine whether certain conclusions necessarily follow from information in given statements or premises.

Interpretations. The ability to weigh evidence and decide if generalizations or conclusions based on the given data are warranted.

Evaluation of Arguments. The ability to distinguish between arguments that are strong and relevant and

those that are weak and irrelevant to a particular question at issue. (Watson & Glaser, 1980b, p. 2).

Each subtest has 16 questions with the maximum raw score of 80. Judgements and results of previous studies (Morse & McCune, 1957) agree with Watson and Glaser (1980b) that the CTA has an adequate sample of questions in each subtest and the total questionnaire to represent a valid estimate of an individual's proficiency with respect to critical thinking. The validity and reliability of the CTA are reported in detail in the CTA manual (Watson & Glaser, 1980b).

An analysis of variance was used to analyze the data for each subtest and the total critical thinking scores. For each significant F-ratio, Newman-Keuls posttests were computed.

Results and Conclusion:

The results showed that there were significant ($p < .04$) differences among the three groups on three subtests (Inference, Recognition of Assumptions, and Evaluation of Arguments) and the Total critical thinking scores (refer to Table 1).

The results of the posttests for the subtests with significant F-ratios can be summarized as follows. On the Inference and Evaluation of Arguments subtests, students with A grades had significantly ($p < .05$) higher scores than students with C grades. On Recognition of Assumptions subtest, students with A and B grades (respectively) had significantly higher scores than students with C grades. On the Total critical thinking score, students with A grades

had significantly higher scores than students with B and C grades (respectively) and students with B grades had significantly higher scores than students with C grades.

The findings show that students with higher critical thinking scores (when compared to students who earned significantly lower scores) earned higher grades in college freshman level courses. Although numerous institutions of higher learning offer critical thinking courses at the undergraduate level, it can be assummed that students who develop critical thinking skills prior to college entrance will profit more from the information offered in courses at the college level. The authors of this study strongly advocate that critical thinking courses be offered at middle and high school levels.

REFERENCES

Boyer, E. L. (1978) High school. New York: Harper & Row

Chaffee. J. (1988) Thinking critically. (2nd ed.) Boston, MA: Houghton Mifflin.

College Board. (1983) Academic preparation for college. New York: College Entrance Examination Board, Rockefeller Foundation.

Dressel, P. L. & Mayhew, L. B. (1954) General education: exploration in education. Washington. DC: American Council on Education.

Ennis. R. H. (1987) A taxonomy of critical thinking dispositions and abilities. In J. B. Baron & R. J. Sternberg (Eds.) Teaching thinking skills: theory and practice. New York: Freeman. Pp. 9-26.

Halpern, D. F. (1984) Thought and knowledge: a guide to critical thinking. Hillside, NJ: Erlbaum.

Morse, H., & McCune, G. (1957) Selected items for the testing of study skills and critical thinking. (3rd ed.) Washington, DC: National Council for the Social Studies.

Watson, G., & Glaser, E. M. (1980a) Watson-Glaser Critical Thinking Appraisal. San Antonio, TX: Psychological Corp.

Watson, G., & Glaser, E. M. (1980b) Watson-Glaser Critical Thinking Apprasial, manual. San Antonio, TX: Psychological Corp.